

IN THE CLAIMS:

Replace all the claims now in the case with the following new claims:

21. A method for fabricating a semiconductor device, comprising:

forming an element insulating layer on a substrate;
forming a gate insulating layer on the substrate;
forming a gate electrode on the gate insulating layer;

Q8 forming a sidewall on a side of the gate electrode;
injecting an ion injection species into the substrate using the gate electrode as a mask;

heat-treating the element insulating layer to decrease a fluorine concentration in the element insulating layer to a level less than 1×10^{20} atoms/cm²;

forming a metal layer on the gate electrode; and
heat-treating the metal layer and the gate electrode to form a metal silicide on the gate electrode,

wherein said heat-treating the element insulating layer step is performed before said forming a metal layer step.

22. The method of claim 21, wherein said injecting an ion injection species step includes injecting fluorine and boron.

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--23. The method of claim 21, wherein said injecting an ion injection species step includes injecting BF_2 .

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--24. The method of claim 21, wherein said heat-treating the element insulating layer step is performed at a temperature of 700°C .

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--25. The method of claim 21, further comprising heat-treating the semiconductor substrate and activating the ion injection species at a temperature higher than a temperature of said heat-treating the element insulating layer step,

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wherein said heat-treating the semiconductor substrate step is performed after said heat-treating the element insulating layer step.

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--26. The method as claimed in claim 21, wherein said forming a metal layer step includes forming a titanium layer on the gate electrode.

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--27. A method of fabricating a semiconductor device, comprising:

forming an element insulation layer on a substrate;
forming a gate insulating layer on the substrate;
forming a gate electrode on the gate insulating layer;

forming a sidewall on a side of the gate electrode;

injecting an ion injection species into the substrate using the gate electrode as a mask;

heat-treating the element insulation layer at a temperature which discharges fluorine in the element insulation layer without reacting the fluorine and silicon in the element insulation layer;

forming a metal layer on the gate electrode; and

heat-treating the metal layer and the gate electrode to form a metal silicide on the gate electrode,

wherein said heat-treating the element insulation layer step is performed before said forming a metal layer step.

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~~8~~ --28. The method of claim ~~27~~ ⁷, wherein said injecting an ion injection species step includes injecting fluorine and boron.

~~9~~ --29. The method of claim ~~27~~ ⁷, wherein said injecting an ion injection species step includes injecting BF_2 .

~~10~~ --30. The method of claim ~~27~~ ⁷, wherein said heat-treating the element insulation layer step is at a temperature of $700^{\circ}C$.

~~11~~ --31. The method of claim ~~27~~ ⁷, wherein said heat-treating the element insulation layer step reduces a density of the fluorine in the element insulation layer to less than 1×10^{20} atoms/cm².

--¹²~~22~~. The method of claim ⁷~~27~~, further comprising heat-treating the semiconductor substrate to activate the ion injection species at a temperature higher than a temperature of said heat-treating the element insulation layer step.

--¹³~~23~~. The method as claimed in claim ⁷~~27~~, wherein said forming a metal layer step includes forming a titanium layer on the gate electrode.

--¹⁴~~24~~. A method for fabricating a semiconductor device, comprising:

forming an element insulation layer;
forming a gate insulating layer on a substrate;
forming a gate electrode on the gate insulating layer;

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forming a sidewall on a side of the gate electrode;
forming a surface insulating layer over an entire surface of the substrate;

injecting an ion injection species into the substrate using the gate electrode as a mask;

heat-treating the element insulation layer at a temperature which decreases a fluorine concentration in the element insulation layer;

removing the surface insulating layer;
forming a metal layer on the gate electrode; and
heat-treating the metal layer and the gate electrode to form a metal silicide on the gate electrode.

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--~~35~~. The method of claim *34*, wherein said injecting an ion injection species step includes injecting fluorine and boron.

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--~~36~~. The method of claim *34*, wherein said injecting an ion injection species step includes injecting BF_2 .

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--~~37~~. The method of claim *34*, wherein said heat-treating the element insulating layer step is at a temperature of 700°C .

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--~~38~~. The method of claim *34*, wherein said heat-treating the element insulating layer step decreases the fluorine concentration in the element insulating layer to a level less than 1×10^{20} atoms/cm².

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--~~39~~. The method of claim *34*, further comprising activating the ion injection species by heat-treating the semiconductor substrate at a temperature higher than a temperature of said heat-treating the element insulating layer step,

wherein said activating step is performed after said heat-treating the element insulating layer step.

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--~~40~~. The method as claimed in claim *34*, wherein said forming a metal layer step includes forming a titanium layer on the gate electrode.